INTRODUCTION

Recurrent pregnancy loss (RPL) is defined as three or more consecutive spontaneous pregnancy losses before 20 weeks of gestation. Pregnancy loss in the first trimester is the most common complication affecting approximately 15-20% of clinically recognized pregnancies.[1]

Hypothyroidism is linked to recurrent pregnancy loss. Thyroid hormones are essential for the growth and metabolism of the growing fetus. Early in pregnancy, the mother supplies her fetus with thyroid hormones. If the mother is hypothyroid, she cannot supply her fetus with enough thyroid hormones. Hence hypothyroidism is a risk factor for pregnancy loss. However, the correlation between maternal and fetal thyroid status is poor, and hypothyroid mothers frequently deliver euthyroid infants. Nevertheless, thyroid disorders in early pregnancy may lead to grave consequences, and therefore testing may be appropriate.[4] The prevalence of sub-clinical hypothyroidism in women in the childbearing age may be as high as 5%. [5,4]

The role of antithyroid antibodies in pregnancy loss is controversial. Rushworth et al.[7] and Esplin et al.[8] found no association between antithyroid antibodies and recurrent pregnancy loss whereas Abramson and Green[9] and others[10] found an association between the two. As these studies could not emphasize that thyroid auto antibodies are responsible for fetal loss we evaluated only the thyroid hormones in our study. Since studies in first trimester pregnancy loss are meager in the Indian population, the present study is aimed at determining the thyroid status in women with RPL in first trimester and controls by estimating the serum thyroid hormone concentrations to assess the relationship of hypothyroidism with RPL.

MATERIALS AND METHODS

The study was performed on 163 non-pregnant healthy women with two or more spontaneous consecutive first trimester pregnancy losses between September 2000 and July 2005 at the Institute of Genetics and Hospital for Genetic Diseases, Osmania University, Hyderabad. One hundred and seventy healthy age-matched women without a history of abortion were included in the control group.

The Institutional Ethical Committee at the Osmania University, Hyderabad, India, approved the study. All the women were thoroughly examined clinically at the Institute. Particulars pertaining to their age, place, health status, menstrual history, consanguinity, pedigree and previous medical and reproductive data were recorded in prescribed case sheets. All the women selected for this study were non-pregnant and non-diabetic with normal uterine anatomy, normal peripheral blood karyotype and anticardiolipin antibody negative and negative for TORCH infections and their spouses were non-diabetic with normal karyotype, normal sperm count and normal sperm morphology. After obtaining an informed and written consent from the couples in the study and control groups 2 mL of blood from each woman were collected and serum was separated and stored at -20°C in small aliquots for thyroid hormonal investigations.

The quantitative estimation of tri-iodothyronine (T3) and Thyroxin (T4) hormone levels in serum samples was carried out by radio immunoassay (RIA) technique. The procedure follows the basic principle of competition between a radioactive and a non-radioactive antigen for a fixed number of antibody binding sites. The normal range of serum T3 is 70-200 ng/dl and that of T4 is 5.0-12.5 µg/dl. The quantitative estimation of Thyroid Stimulating Hormone (TSH) was carried out by immunoradiometric assay (IRMA). It is a non-competitive assay in which the analyte to be measured is sandwiched between radiolabelled and unlabelled antibodies. The normal range of serum TSH is 0.3-5.0 µIU/ml.

RESULTS

The mean maternal age of the 163 women with RPL was observed as 25.19 ± 4.01 years. The mean paternal age was 30.46 ± 4.18 years. 50 (30.67%) out of 163 women with RPL had consanguineous marriages, and first cousin

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marriages (62%) were frequent whereas in control group 25 (14.71%) out of 170 women had consanguineous marriages and first cousin marriages (84%) were frequent. In the present study 87 (53.37%) women experienced three or more pregnancy losses and 76 (46.63%) women experienced two losses.

Thyroid hormones: In seven (4.29%) women with RPL, hypothyroidism was found to be causative for abortion. Out of seven, in three cases consanguinity was observed. In four cases two pregnancy losses and in three cases three or more losses were observed. In the control group one (0.61%) woman was identified with hypothyroidism. The normal range considered for serum T3 is 70 to 200 ng/dl; for T4 5.0 to 12.5 µg/dl and for TSH 0.3 to 5.0 µU/ml. The mean ±SD values of serum T3, T4 and TSH levels obtained in euthyroid and hypothyroid patients and controls are shown in Table 1.

Statistical analysis

The statistical analyses were performed with the use of student’s two-tailed t-test. The differences in the levels of T3 (t’ = 2.4522, df = 161 and Cl = 0.015) for TSH (t’ = 2.4522, df = 161 and Cl = 29.06-30.72). As there was only one hypothyroid case found in the control group, test of significance could not be carried out between euthyroid and hypothyroid women in controls. The differences in the levels of T3 (t’ = 2.4522, df = 161 and Cl = 29.06-30.72) and TSH (t’ = 4.8718, df = 323 and Cl = 2.43-2.91) between euthyroid patients and euthyroid controls were found statistically highly significant (P < 0.001). The results indicate that hypothyroidism is associated with recurrent pregnancy loss.

DISCUSSION

Thyroid hormones are essential for the sustenance of the developing fetus. Hence a hypothyroid pregnant woman needs thyroxin treatment more than ever because she must provide T4 for both herself and her developing fetus. The fetus’s thyroid gland is not fully functional until after 12 weeks of pregnancy. If the mother does not have sufficient thyroid hormones, she may be at increased risk of miscarriage. Since the majority of women are not sure that they are pregnant until four to six weeks after the last menstrual period, they don’t go in to see doctors and test their thyroid function until the first trimester is more than half over. Hence it is advisable to suggest to the pregnant women to go in for thyroid testing as soon as possible after knowing they are pregnant.

Tina et al. found that pregnant women treated for hypothyroidism were not at any increased risk for perinatal morbidity compared with pregnant euthyroid women. Canaris et al. and Hollowell et al. found the overall prevalence of sub clinical hypothyroidism to be as high as 5% in women of childbearing age. There may be no harm in treating patients with sub clinical hypothyroidism, as long as they are given the correct thyroxin dose. However a joint statement on management of sub clinical thyroid dysfunction from the American Association of Clinical Endocrinologists, the American Thyroid Association and The Endocrine Society believes that many patients with personal or family history of thyroid disease or with symptoms suggestive of hypothyroidism should be tested for thyroid hormone levels.

In the present study consanguinity was found in 30.67% of cases with RPL and the most frequent type of consanguineous marriage was between first cousins (62%). Hence this study demonstrates that hypothyroidism has a statistically significant relationship with recurrent pregnancy loss in first trimester and suggests that diagnosis of hypothyroidism could help women with two or more recurrent pregnancy losses in the first trimester to have a successful outcome in subsequent pregnancy.

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REFERENCES

HEMATOLOGICAL PROFILE OF TWENTY-NINE TRIBAL COMPOUND CASES OF HEMOGLOBINOPATHIES AND G-6-PD DEFICIENCY IN RURAL ORISSA

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ABSTRACT

BACKGROUND: Hematogenetic disorders are commonly encountered in Orissa state in Central-Eastern India. Hemoglobinopathies and G-6-PD deficiency are the most frequently occurring hereditary hemolytic disorders causing high morbidity and mortality in vulnerable people. AIMS: There is no study available reporting combined condition of hemoglobinopathies and G-6-PD deficiency in a single individual from India. This study aims to assess the coincidence of G-6-PD enzyme deficiency with different hemoglobinopathies and β-thalassemia and to evaluate the influence of combined conditions on the hematological expression. SETTINGS AND DESIGN: The study was carried out in rural Orissa with a random sampling procedure. MATERIALS AND METHODS: Following the standard methodology and techniques, this study highlights 29 tribal cases of compound occurrence of hemoglobinopathy with G-6-PD deficiency in a randomly conducted study in Sundargarh district of Orissa. STATISTICAL ANALYSIS: Results were subjected to statistical analysis. RESULTS: Both female heterozygotes and homozygotes of G-6-PD deficiency in association with different hemoglobinopathies showed reduced values of hematological indices: hemoglobin level, MCV, MCH, MCHC and RBC in comparison to normals. Red cell indices were found further reduced in male G-6-PD deficiency concurrence with hemoglobinopathies in homozygous condition, i.e. sickle cell disease (HbSS) or β-thalassemia and to evaluate the

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